

Please substitute the following for pending Claim 1:

[c01] 1.(Twice Amended)A photodetector (100, 200, 300), said photodetector (100, 200, 300), comprising:

- a) a substrate (102, 202, 306), said substrate comprising gallium nitride grown by precipitating gallium nitride onto a crystal gallium nitride seed;
- b) at least one active layer (104, 302) disposed on said substrate (102, 202, 306); and
- c) at least one conductive contact structure (106, 210, 308) affixed to at least one of said substrate (102, 202, 306) and said at least one active layer (104).

Please substitute the following for pending Claim 59:

[c59] 59.(Amended)A photodetector, said photodetector comprising:

- a) a gallium nitride substrate, said gallium nitride substrate comprising a single crystal gallium nitride wafer grown by precipitating gallium nitride onto a crystal gallium nitride seed and having a dislocation density of less than about 10^5cm^{-2} ;
- b) at least one active layer disposed on said gallium nitride substrate, said at least one active layer comprising $\text{Ga}_{1-x-y}\text{Al}_x\text{In}_y\text{N}_{1-z-w}\text{P}_z\text{As}_w$, wherein $0 \leq x, y, z, w \leq 1$, $0 \leq x + y \leq 1$, and $0 \leq z + w \leq 1$; and
- c) at least one conductive contact structure affixed to at least one of said gallium nitride substrate and said at least one active layer.